

REMARKS

Claims 1, 2, 5 and 13 are amended, Claims 18-21 are cancelled and Claims 22-31 are added. Claims 1-17 and 22-31 remain in the application. No new matter is added by the amendments to the specification and the claims.

The Examiner required restriction to one of the following inventions under 35 U.S.C. 121:

- I. Claims 1-17, drawn to a painting apparatus, classified in class 239, subclass 750.
- II. Claims 18-21, drawn to a method, classified in class 427, subclass 458.

During a telephone conversation on 1/5/05, Applicants' attorney made a provisional election without traverse to prosecute the invention of a painting apparatus, Claims 1-17. Applicants affirm this election.

In the Office Action dated January 28, 2005, the Examiner noted the use of the trademark LAURAMID and stated that it should be capitalized wherever it appears and be accompanied by the generic terminology. Applicants amended the specification on pages 10, 12 and 13 as recommended by the Examiner.

The Examiner rejected Claim 2 under 35 USC §112, second paragraph, for containing the trademark LAURAMID. Applicants amended Claim 2 to replace the trademark with the generic name for the material as set forth on page 10 at line 12.

Applicants amended Claim 5 to clarify that the paint canister is opposite the color changer adjacent a side wall of the housing.

The Examiner rejected Claims 1, 5, 6 and 8 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. (U.S. Patent No. 5,772,125) in view of Wacker et al. (U.S. Patent No. 5,100,057). According to the Examiner, Ehinger et al. discloses a painting apparatus comprising an arm (5 or 52); a color changer (9 or 59) mounted external to said housing; a paint canister (6 or 56) mounted adjacent an inside side of said housing; a paint transfer line (13 or 62) connecting said color changer to an interior of said paint canister; a canister manifold (57) (column 4, lines 4-14); and a piston ram mounted in said housing and being connected to said paint canister (Figures 1 and 2; column 2, lines 49-62); but does not specifically disclose housing formed of a non-conductive material. The Examiner stated, however, that Wacker et al. discloses using a non-conductive material for a housing used in a similar environment (column 5, lines 39-52).

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The Examiner rejected Claim 2 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Wacker et al. in view of Diamond et al. (U.S. Patent No. 3,724,755).

The Examiner rejected Claims 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Wacker et al. in view of Gimple et al. (U.S. Patent No. 5,413,283).

The Examiner rejected Claim 7 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Wacker et al. in view of Malarz et al. (U.S. Patent No. 4,402,234).

The Examiner rejected Claim 9 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Wacker et al. in view of Kamimura (U.S. Patent No. 5,063,828).

The Examiner rejected Claim 10 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Wacker et al. in view of Cote et al. (U.S. Patent No. 6,250,502).

The Examiner rejected Claim 11 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al., Wacker et al. and Cote et al. in view of Pratt (U.S. Patent No. 6,261,042).

The Examiner rejected Claim 12 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Wacker et al. in view of Minoura et al. (U.S. Patent No. 5,851,292).

Ehinger et al. shows in Fig. 1 a lateral spray coating machine 1 having a movable carriage 3 carrying an arm 4 on which is mounted a coating material changing assembly 9. A support 5 is mounted at a free end of the arm 4 and contains a supply tank with a piston 6 for supplying the coating material to a sprayer 8. In one position of the support 5, a rapid connect means 12 on the changing assembly 9 engages a rapid connect means 13 on the support 5 to fill the tank 6 with coating material through the changing assembly 9. When the tank 6 is filled, the rapid connect means 12 and 13 are disengaged, the support 5 is rotated away from the changing assembly 9 and the changing assembly is moved horizontally away from the support. The "roof machine" shown in Fig. 2 operates in a similar manner except that the support 52 translates parallel to the axis 54 of the beam 50. Each of these machines relies upon a physical separation and disconnection of the connection means 12, 13 and 61, 62 to provide electrical isolation between the changing assembly and the tank during painting.

Claim 1 is amended to clarify that the color changer is mounted on an external surface of and the paint canister is mounted inside the housing. The changing assembly 9 of the Ehinger et al. machine is mounted on the arm 4 while the tank 6 is mounted inside the housing of the separate support 5 the is pivotally attached to the arm 4.

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Amended Claim 1 also defines the paint transfer line as continuously connecting the color changer to the interior of the paint canister and as providing electrostatic isolation during use of the paint canister for painting. The Ehinger et al. machine disconnects the changing assembly 9 from the tank 6 during painting in order to provide the necessary electrostatic isolation during coating.

The Wacker et al. patent shows a housing 11 constructed of an electrically non-conductive material. There is no supply tank in the housing. Instead, a color change valve manifold 145 is provided inside the housing 11 and has a plurality of fluid inlets 212 through 215 coupled to sources of pressurized fluid remote from the housing. There is no reason to substitute the Wacker et al. housing for the support of Ehinger et al. since Ehinger et al. achieves electrostatic isolation by physical separation of the changing assembly from the coating material tank.

Thus, amended Claim 1 and dependent Claims 2-12 define a painting apparatus that is not shown nor suggested by any combination of Ehinger et al., Wacker et al. and the other cited references.

The Examiner rejected Claim 13 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. in view of Cote et al. He stated that Ehinger et al. discloses a painting apparatus comprising an arm (5 or 52); a paint canister (6 or 56) mounted inside said arm; and a piston ram mounted in said housing and being connected to said paint canister (Figures 1 and 2; column 2, lines 49-62); but does not specifically disclose a canister quick disconnect releasably attaching said paint canister to said piston ram. According to the Examiner, however, Cote et al. discloses a canister quick disconnect (column 2, line 57 - column 3, line 41).

The Examiner rejected Claim 14 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Cote et al. in view of Kamimura.

The Examiner rejected Claim 15 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Cote et al. in view of Pratt.

The Examiner rejected Claims 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Ehinger et al. and Cote et al. in view of Minoura et al.

The Ehinger et al. patent schematically shows a tank 6, 56 having a piston inside. It is stated that the piston is driven by compressed air (Column 3, Line 10). The passage referenced

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by the Examiner (Column 2, Lines 49-62) does not describe a piston ram having a ram extending into the paint canister connected to a piston movable inside the paint canister as defined by Claims 13-17.

The Cote et al. patent shows a precision dispensing pump for use in semiconductor packaging and/or semiconductor assembly. In Column 3 at Lines 35-41 it is stated that the reservoir 45 may be attached to the displacement drive 40 by a clamp, a quick disconnect clamp collar, or other fast release device. Fig. 3 shows a pump clamp 86 and that the reservoir 45 and the drive 40 are separated by a diaphragm 70.

There is no teaching of combining Cote et al. with Ehinger et al. because Ehinger et al. does not disclose any construction for operating the piston inside the tank. Also, the references do not teach how the pump clamp 86 of Cote et al. could be used to attach a paint canister to a piston ram as defined by Applicants' Claims 13-17.

Thus, amended Claim 13 and dependent Claims 14-17 define a painting apparatus that is not shown in nor suggested by any combination of Ehinger et al., Cote et al. and the other cited references.

Applicants added independent Claim 22 and dependent Claims 23-25 wherein Claim 22 is similar to Claim 1 but defines the color changer as simply being outside the housing.

Applicants added independent Claim 26 and dependent Claims 27-31 wherein Claim 26 defines a robot arm having a housing formed of a non-conductive material and an attached wrist formed of a non-conductive material.

Dependent Claims 25 and 31 define a "pig" used to minimize paint waste. The pig is described in the specification on page 17 at lines 3-9.

The Examiner stated that prior art made of record and not relied upon is considered pertinent to applicant's disclosure as Yoshida et al (U.S. Patent No. 6,164,561) discloses said piston ram to include a ball screw including a drive motor connected to said ball screw (Figures 8-10; column 13, line 52 — column 14, line 4). Applicants reviewed this reference and found it to be no more pertinent than the prior art relied upon by the Examiner in his rejections.

In view of the amendments to the claims and the above arguments, Applicants believe that the claims of record now define patentable subject matter over the art of record. Accordingly, an early Notice of Allowance is respectfully requested.

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